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ABSTRACT

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Abstract

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Fifty two Negro and 52 white second graders were asked to associate to each of 18 nonsense syllables verbally presented by one of two Negro or one of two white examiners. No examiner race differences were obtained. While significant subject race differences occurred in six of 15 response categories, each resulted from either the idiosyncratic response tendencies of a few subjects or of subjects of one sex within one race. In contrast to earlier studies using meaningful words as stimuli, no general black-white subject differences were obtained. Explanations for previously noted racial differences were discussed.

Associative Responses to Nonsense Syllables by Negro and White Second Graders[1]

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Word association tasks have been found to be useful tools in studying verbal behavior and cognitive development (Brown and Berko, 1960; Entwisle, 1966; Jensen, 1967; Pollio, 1968; Underwood, 1966). Some investigators (Belcher and Campbell, 1968; John, 1963; Mitchell, Rosanoff, and Rosanoff, 1919; Wilcox, 1968, 1971) have used them specifically to contrast the verbal performance of Negro and white children. Their general conclusions have been that Negro children display some deficiencies in verbal ability.

Recent literature (American Speech and Hearing Association, 1970; Marwit & Marwit, in press; Marwit, Marwit, & Boswell, 1972; Shores, 1972; Shuy, 1966-70; Williams, 1970), however, concerned with the acquisition of basic phonological and grammatical rules of language, suggests that language patterns of Negro children may represent a different, rather than deficient, language in relation to the standard English spoken by most white Americans. Furthermore, literature critical of traditional IQ tests (Eells, Davis, Havighurst, Herrick, & Tyler, 1951) amply documents cultural differences in the content of Negro children's responses and cautions against interpreting these as intellectual deficits. In view of this, it is possible that earlier noted "deficiencies" in associative responses among Negro children

may have resulted from the use of standard English stimuli presented in standard English format and considered according to criteria applicable only for white middle-class children. The present study controls for the possibilities of linguistic and cultural interference by employing nonsense syllables rather than dictionary words as stimuli for a word association task. It is hypothesized that under these conditions, racial differences will not be obtained.

Method

Subjects

Each of 52 black and 52 white second graders from four St. Louis County public schools were tested by either one of two white or one of two black male undergraduate examiners. Each group contained an approximately equal number of male and female subjects.

Procedure

Subjects were tested individually. Each was instructed to give his association to each of 18 nonsense syllables verbally presented by the examiner. These stimuli were obtained from the list previously used by Marwit, et al. (1972) and Marwit and Marwit (in press). Responses were recorded verbatim and given to an undergraduate female who assigned each a response category from a list prepared a priori (see Table 1). To establish the reliability of rating, a second female categorized the responses of 20 of these subjects, selected at random, and a kappa coefficient of agreement for nominal scale data (Fleiss, Cohen, & Everett, 1969) was performed on the 20 matched sets of data. Significant agreement was obtained ($\underline{k} = .91$, $\underline{p} < .001$) to justify using the first rater's

Table 1

Response Categories

Category	Description
1	rhyming nonsense syllable
2	nonrhyming nonsense syllable
3	rhyming word
4	nonrhyming word
5	category 3 or 4 as noun
6	category 3 or 4 as verb
7	category 3 or 4 as adjective
8	repetition of stimulus
9	definition of stimulus
10	stimulus used as stem to form another nonsense "word"
11	stimulus used as stem to form a meaningful word
12	stimulus used as stem for a word (noun) in a phrase
13	stimulus used as stem for a word (verb) in a phrase
14	stimulus used as stem for a word (adjective) in a phrase
15	stimulus used as part of a word other than stem
16	stimulus used as part of a nonsense "word" other than stem
17	stimulus used as a noun in a phrase
18	stimulus used as a verb in a phrase
19	stimulus used as an adjective in a phrase
20	stimulus used in a phrase other than noun, verb, or adjective
21	phrase or sentence with no evident use of stimulus
22	no response

categorizations as data for analysis.

Results

Table 2 presents the total number of responses in each of the 15 categories used by black and white male and black and white female subjects and the chi-square comparisons of these groups. Seven categories were not used; 19, 12, 13, and 14 because they were inappropriate for the responses obtained; 5, 6, and 7 because, in most instances, the form class of single words was impossible to determine (e.g., "fly" as noun or verb). The data are collapsed across examiner race since black female, black male, white female, and white male subjects gave an approximately equal number of responses in each of the 15 categories when tested by black and white examiners (r = .96, .83, .96, .93, $p < .001$, respectively).

Significant chi-squares were obtained in eight of the 15 categories. For each of those eight categories, additional chi-squares comparing black with white subjects independent of sex, and male with female subjects independent of race were performed. Subject race comparisons were significnat in categories 4, 9, 10, 11, 21, and 22, but not in 17, or 18. In category 17, neither significant subject race nor significant subject sex differences were found. In category 18, a significant subject sex difference was obtained (X^2 = 11.41, $p < .001$) but an interpretation of this difference is relatively meaningless since only 11 responses are involved, less than 1% of the total, and since these 11 were contributed by only two of the 28 black and two of the 23 white male subjects.

Of the six significant differences obtained due to subject race,

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Table 2

Frequency and Chi-Square Comparisons of Black and White Male and Black and White Female Subjects' Associative Responses

	Subjects				
Categories	BF(N=24)	WF(N=29)	BM(N=28)	WM(N=23)	χ^2
1	24	39	50	36	5.92
2	28	16	25	23	5.95
3	72	129	109	95	5.99
4	243	229	212	167	15.30**
8	3	2	4	1	1.70
9	8	32	27	29	12.91**
10	2	12	5	12	10.23*
11	1	6	0	5	8.54*
15	0	2	1	1	1.62
16	1	0	4	1	5.34
17	19	3	7	15	19.76**
18	0	0	7	4	12.09**
20	1	1	0	0	1.94
21	12	31	43	22	13.33**
22	15	20	10	3	10.70*

Note. - Abbreviations; BF = black female, WF = white female, BM = black male, WM = white male.

*$p < .05$
**$p < .01$

those involving categories 4, 9, 21, and 22 resulted from the disproportionate response rate of subjects of one sex within one race only. Significantly more nonrhyming words, category 4 ($\underline{X}^2 = 14.81$, $\underline{p} < .001$), significantly less definitions of the stimulus, category 9 ($\underline{X}^2 = 11.65$, $\underline{p} < .001$), and significantly less phrases or sentences with no evident use of the stimulus, category 21 ($\underline{X}^2 = 8.61$, $\underline{p} < .01$) were obtained from black females than from either of the other three groups, none of whom differed from each other; and significantly less "no responses," category 22 ($\underline{X}^2 = 9.85$, $\underline{p} < .05$) were obtained from white males than from the other three groups all of whom showed an approximately equal number of response failures. The remaining two categories exhibiting significant differences due to subject race are category 10, stimulus used as a stem to form another nonsense word ($\underline{X}^2 = 9.32$, $\underline{p} < .01$) and category 11, stimulus used as a stem to form a meaningful word ($\underline{X}^2 = 8.32$, $\underline{p} < .01$), each contributing less than 2% to the total and each being the artifactual result of the unusual responses of one white male and one white female subject. In each case, removal of those two subjects from analysis resulted in nonsignificant differences among all four groups.

Discussion

In general, the results favor the hypothesis. No meaningful subject race differences were obtained in any response category when comparing black and white subjects independent of sex. Where differences were obtained, they resulted either from the idiosyncratic response pattern of one or two subjects: categories 10 and 11, or from the disproportionate response rate of subjects of one sex within one race:

categories 4, 9, 21, and 22. In three of these latter four instances, the unusual response rates of black female subjects were responsible for the subject race differences obtained. That black female subjects responsed with relatively more nonrhyming words, and relatively less definitions and uses of stimuli in phrases than did either white females, black males, or white males is interesting but difficult to interpret. It may represent a greater need on the part of this particular group to provide a meaningful word where meaning is initially absent and a resulting reduction in this group's ability to willingness to respond with a variety of associations. Whether this or any other interpretation is explanatory can only be determined by further investigation. However, it should be noted (Table 2) that the tendency to respond primarily with nonrhyming words was characteristic of all four subject groups, and that while the relative rate of responses within categories may have differed for black females, the general ranking of response frequencies across categories was approximately the same for all groups.

Previous word association studies involving Negro and white subjects either disregarded or failed to report sex differences and may therefore have contaminated the interpretation of their results. The current data suggest that previously concluded black-white differences may have resulted from a unique response tendency on the part of black female subjects rather than from a response tendency characteristic of the whole race. It would therefore seem important to reanalyze the earlier data by adding sex as an additional dimension or to replicate earlier procedures so as to account for the possibility of a Race X Sex interaction. In addition,

while no prior study discussed the frequency of response failures, the present data indicate that disproportionately fewer "no responses" are obtained from white males than from any other group, suggesting a greater need, or ability, for these subjects to respond, and further supporting the necessity of accounting for subject sex within subject race.

It is difficult to contrast the present results with those obtained in earlier studies dealing with black-white performance on word association tasks. In general, fewer racial differences were obtained in the present study than in previous investigations. Whether this results from the use of younger subjects, from the employment of nonsense syllables as stimuli, from the analysis of the data by subject sex as well as by subject race, or from a combination of these, is hard to determine. It does appear, however, that at least for this age group with this design, a definitive conclusion of verbal deficiency among Negro subjects is unwarranted.

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FOOTNOTES

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